WHAT IS CLAIMED IS:

1. A semiconductor device comprising:

a first insulating film comprising an opening;

a capacitor formed at a selected position in the opening;

a second insulating film formed at least in the opening; and

a third insulating film formed on the second insulating film.

2. The semiconductor device according to claim 1, further comprising a diffusion preventing film formed under the first insulating film and the capacitor.

3. The semiconductor device according to claim 1, further comprising a diffusion preventing film formed between the capacitor and the second insulating film.

4. The semiconductor device according to claim 1, further comprising a first diffusion preventing film formed under the first insulating film and the capacitor, and a second diffusion preventing film formed between the capacitor and the second insulating film.

5. The semiconductor device according to claim 1, wherein the first insulating film is one of a low dielectric film, a diffusion preventing film and a laminated film formed of the low dielectric film and the diffusion preventing film.

6. The semiconductor device according to claim 1,

wherein the third insulating film is a low dielectric film, and the second insulating film comprises a relative dielectric constant higher than the third insulating film.

7. The semiconductor device according to claim 1, wherein the second insulating film is a coated organic insulating film.

8. The semiconductor device according to claim 1, wherein the capacitor is thinner than the first insulating film.

9. The semiconductor device according to claim 1, wherein the second insulating film is formed only in the opening.

10. The semiconductor device according to claim 1, wherein the first insulating film surrounds the capacitor.

11. A process of manufacturing a semiconductor device, comprising:

forming a first insulating film;

removing a selected portion of the first insulating film, thereby forming an opening;

forming a capacitor at a selected position in the opening;

forming a second insulating film at least in the opening; and

forming a third insulating film on the second insulating film.

12. The process of manufacturing a semiconductor device according to claim 11, further comprising forming a diffusion preventing film on which the first insulating film is formed.

13. The process of manufacturing a semiconductor device according to claim 11, further comprising forming a diffusion preventing film between the capacitor and the second insulating film.

14. The process of manufacturing a semiconductor device according to claim 11, further comprising:

forming a first diffusion preventing film on which the first insulating film is formed; and

forming a second diffusion preventing film between the capacitor and the second insulating film.

15. The process of manufacturing a semiconductor device according to claim 11, wherein the first insulating film is one of a low dielectric film, a diffusion preventing film and a laminated film formed of the low dielectric film and the diffusion preventing film.

16. The process of manufacturing a semiconductor device according to claim 11, wherein the third insulating film is a low dielectric film, and the second insulating film comprises a relative dielectric constant higher than the third insulating film.

17. The process of manufacturing a semiconductor device according to claim 11, wherein the second

insulating film is a coated organic insulating film.

18. The process of manufacturing a semiconductor device according to claim 11, wherein the capacitor is thinner than the first insulating film.

19. The process of manufacturing a semiconductor device according to claim 11, wherein the second insulating film is formed only in the opening.

20. The process of manufacturing a semiconductor device according to claim 11, further comprising:

forming the second insulating film on the first insulating film and the capacitor; and

flattening the second insulating film by CMP until a surface of the first insulating film is exposed.